



WWF®

BRIEFING

JULY
2013

Key concepts in climate change

RESILIENCE

Introduction

Resilience is the ability of a system to undergo change and reorganize so as to retain essentially the same functions and feedbacks. Resilient systems are ones that encourage diversity, flexibility, inclusion and participation; which recognize social values; accept uncertainty and change; and foster learning.

Resilience has appeal because of its focus on positive and transformative processes. However the complexity of a systems approach and the multidisciplinary nature of resilience thinking often poses barriers to its application.



Resilience, climate change, and business as usual conservation

In ecology, the concept of resilience was used to refer to recovery from disturbance. Its usage has evolved over time to encompass social-ecological systems - interwoven systems of human societies and ecosystems.

In practice many people still use the term resilience in the sense of 'bouncing back' to an original state. They think that adaptation for species and ecosystems means doing what we can to remove other stressors – in other words, exactly what we do now.

This is an excuse for business-as-usual conservation. To meet the challenges of the 21st century we need to proactively manage for change.

A new buzzword?

Resilience gained popularity in the development community after the 2008 global food, fuel, and financial crises left people searching for new approaches to tackling poverty. From a development perspective resilience is seen as an ability rather than an outcome.

Because conservation and development practitioners come to the table with different framings, agreeing on a common conceptual understanding is essential for collaborative work. Without a working definition it is difficult to measure resilience, to show results and ensure accountability to donors and beneficiaries.

Transformability

Transformability is an important aspect of resilience. It refers to the capacity to create a fundamentally new system when ecological, economic or social conditions make the existing one untenable.

Every system has opportunities for transformation to alternative, more desirable states. However most transformations create both winners and losers, and have uncertain costs and benefits. Theory and practice is still limited when it comes to avoiding undesirable transformations and successfully navigating to more desirable paths.

Ecosystem Stewardship

Arising from work on resilience, ecosystem stewardship is a framework for fostering the social-ecological sustainability of a rapidly changing planet.

The goal of ecosystem stewardship is to provide ecosystem services that support human wellbeing under conditions of uncertainty and change by:

- reducing vulnerability to expected changes;
- fostering resilience to sustain desirable conditions in the face of shocks and uncertainty; and
- transforming from undesirable development pathways when opportunities emerge.

WWF is exploring ecosystem stewardship as a framework for its work on climate change in places such as the Arctic.



The sustainability and integrity of ecosystems and human society are both essential goals of stewardship. Neither can be achieved without the other.



Images

Front cover: El Feidja National Park, Tunisia. New vegetation growth, one year after a forest fire. © Michel Gunther / WWF-Canon

Page 2: Mother and son from the Inuit community of Shishmaref, a tiny island between Alaska and Siberia collect berries from the mainland, Serpentine river delta. Sea ice that once surrounded their island from late September now does not form until December. The animals that support the community subsistence livelihood are migrating north, becoming harder to find. © Global Warming Images/ WWF-Canon.

Back cover: Box tree (*Buxus sempervirens*); Castile-La Mancha, Spain. © Jorge BARTOLOME / WWF-Canon.

References

Béné, C., Wood, R.G., Newsham, A. and Davies, M. (2012) Resilience: New Utopia or New Tyranny? Reflection about the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes. IDS Working Paper Number 405, Institute of Development Studies, Brighton, UK.

Chapin, F.S., Carpenter, S.R., Kofinas, G.P., Folke, C., Abel, N., Clark, W.C., Olsson, P., Stafford-Smith, D.M., Walker, B., Young, O.R., Berkes, F., Biggs, R., Grove, J.M., Naylor, R. L., Pinkerton, E., Steffen, W., and Swanson, F.J. (2009) Ecosystem stewardship: sustainability strategies for a rapidly changing planet. *Trends in Ecology and Evolution*, 25 (4), 241-249.

Miller, F., Osbahr, H., Boyd, E., Thomalla, F., Bharwani, S., Ziervogel, G., Walker, B., Birkmann, J., van der Leeuw, S., Rockstrom, J., Hinkel, J., Downing, T., Folke, C. and nelson, D. (2010) Resilience and Vulnerability: Complementary or conflicting concepts? *Ecology and Society*, 15 (3)

Walker, B.H., Holling C.S., Carpenter, S.R., Kinzig, A.P. (2004) Resilience, Adaptability and transformability in social-ecological systems. *Ecology and Society*, 9(2) 5

Co-written by the WWF climate adaptation team

WWF.PANDA.ORG

